Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Currently Amended) A method, comprising:

providing a substrate having a photoresist layer formed thereon;

providing a photomask over at least a portion of the photoresist layer, the photomask having a shaded main pattern and ~~an assist pattern~~ shaded assist patterns disposed at corners of but not overlapping the main pattern;

transferring the main pattern to the photoresist layer; and

forming a pattern on the substrate.

2. (Currently Amended) The method as set forth in claim 1, wherein:

~~the assist pattern is located adjacent to~~ the main pattern comprises a rectangular shape having corners; and

the assist ~~pattern does not overlap~~ patterns are disposed at each of the corners of the main pattern.

3. (Currently Amended) The method as set forth in claim 1, wherein:

the main pattern and the assist ~~pattern~~ patterns are shaded to block radiation from reaching a portion of the photoresist layer;

the main pattern and the assist ~~pattern~~ patterns are formed on a transparent photomask plate; and

the assist ~~pattern is a~~ patterns comprise like-scattering ~~bar~~ bars.

4. (Currently Amended) The method as set forth in claim 1, wherein:

the main pattern is shaded to block radiation from reaching a first portion of the photoresist layer;

the assist ~~pattern is transparent to allow~~ patterns allows radiation to pass to a second portion of the photoresist layer;

the main pattern and the assist ~~pattern~~ patterns are formed on a transparent photomask plate; and

the assist ~~pattern is a~~ patterns are like-scattering ~~bar~~ bars.

5. (Currently Amended) The method as set forth in claim 1, wherein~~: the main pattern has a plurality of corners; the assist pattern is positioned proximate to at least one of the plurality of corners of the main pattern; and~~ the assist ~~pattern does~~ patterns do not contact the main pattern.

6. (Currently Amended) The method as set forth in claim 1, wherein:

the assist ~~pattern is a like-scattering bar~~ patterns are like-scattering bars; and

the main pattern and the assist ~~pattern have a rectangular shape~~ patterns have rectangular shapes.

7. (Currently Amended) The method as set forth in claim 1, wherein:

the main pattern has a length and a width, the length being greater than the width;

the assist ~~pattern has a length and a width, the length being greater than the width~~ patterns have widths and lengths that are greater than the widths;

the length of the main pattern is oriented substantially parallel to the ~~length~~ lengths of the assist ~~pattern~~patterns; and

the width of each of the assist ~~pattern~~ patterns is between about 60 nanometers and 80 nanometers.

8. (Currently Amended) The method as set forth in claim 1, wherein:

the main pattern has a length and a width, the length being greater than the width;

the assist ~~pattern has a length and a width, the length being greater than the width~~ patterns have widths and lengths that are greater than the widths;

the length of the main pattern ~~being~~ is oriented substantially perpendicular to the ~~length of the assist pattern~~ lengths of the assist patterns; and

the length of each of the assist ~~feature~~ features is greater than one-half the width of the main pattern.

9. (Currently Amended) The method as set forth in claim 1, wherein:

the transferring of the main pattern to the photoresist layer comprises performing an exposure process on the main pattern;

the exposure process does not transfer the assist ~~pattern~~patterns to the photoresist layer; and

the exposure process is performed for between about 0.1 seconds and 2.0 seconds.

10. (Original) The method as set forth in claim 1, wherein:

the transferring of the main pattern to the photoresist layer comprises performing an exposure process on the main pattern; and

the exposure process comprises exposure to energy of between about 20 milli-joule/square centimeter and 50 milli-joule/square centimeter.

11. (Original) The method as set forth in claim 1, wherein:

the transferring of the main pattern to the photoresist layer comprises exposing the main pattern to energy ranging from between about 20 milli-joule/square centimeter to 50 milli-joule/square centimeter; and

the exposing of the main pattern to energy is for between about 0.1 seconds and 2.0 seconds.

12. (Original) The method as set forth in claim 1, wherein:

the transferring of the main pattern to the photoresist layer comprises projecting radiation toward the main pattern;

the forming of the pattern on the photoresist comprises removing a portion of the photoresist layer using a developer solution; and

the forming of the pattern on the substrate comprises forming a rectangular photoresist pattern on the substrate.

13. (Original) A structure formed using the method of claim 1.

14. (Original) A structure formed using the method of claim 2.

15. (Original) A method for forming a pattern on a substrate, comprising:

providing a substrate having a photoresist layer formed thereon;

providing a photomask having a plurality of openings on the photoresist layer, wherein at least a portion of the plurality of openings do not overlap;

exposing the photomask to an energy field to transfer an image, which is defined by the plurality of openings, to the photoresist layer, wherein the transferred image has a plurality of illuminated areas which correspond to the portion of the plurality of openings but which overlap; and forming a pattern using the image on the substrate.

16. (Original) The method of claim 15, wherein at least one of the plurality of openings is spaced apart from at least another one of the plurality of openings.

17. (Original) The method of claim 15, wherein:

the plurality of openings comprises first, second, third and fourth openings, the first opening being positioned across from the third opening and the second opening being positioned across from the fourth opening;

the transferred image has first, second, third and fourth illuminated areas that correspond to the first, second, third and fourth openings; and

the exposing of the photomask to the energy field causes a corner of the first illuminated area to overlap with a corner of the second illuminated area, a corner of the second illuminated area to overlap with a corner of the third illuminated area, a corner of

the third illuminated area to overlap with a corner of the fourth illuminated area, and a corner of the fourth illuminated area to overlap with a corner of the first illuminated area, resulting in the image being defined by the first, second, third and fourth illuminated areas.

18. (Original) The method of claim 15, wherein:

the energy field comprises energy ranging from between about 20 milli-joule/square centimeter to 50 milli-joule/square centimeter; and

the exposing of the photomask to the energy field is for between about 0.1 seconds and 2.0 seconds.

19. (Original) The method of claim 15, wherein:

the image is a substantially rectangular image; and

the forming of the pattern using the image on the photoresist comprises performing a development process.

20. (Original) The method of claim 15, wherein:

the image is a substantially rectangular image; and

the pattern is a substantially rectangular photoresist pattern.

21. (Original) A structure formed using the method of claim 15.

22. (Original) A structure formed using the method of claim 17.

23. (Original) A lithography process, comprising:

providing a substrate having a photoresist layer formed thereon;

providing on the photoresist layer a photomask having at least four openings;

performing an over-exposure step to translate the at least four openings and a corresponding substantially rectangular image positioned between the at least four openings to the photoresist layer; and

performing a development step to form a substantially rectangular photoresist pattern on the substrate.

24. (New) A method, comprising:

providing a substrate having a photoresist layer formed thereon;

providing a photomask over at least a portion of the photoresist layer, the photomask having a main pattern and an assist pattern formed on a transparent photomask plate, the main pattern being shaded to block radiation from reaching a first portion of the photoresist layer and the assist pattern comprising a like-scattering bar and allowing radiation to pass to a second portion of the photoresist layer;

transferring the main pattern to the photoresist layer; and

forming a pattern on the substrate.

25. (New) A method, comprising:

providing a substrate having a photoresist layer formed thereon;

providing a photomask over at least a portion of the photoresist layer, the photomask having a main pattern and an assist pattern, the main pattern having a width and a length that is greater than the width, and the assist pattern having a width and a length that is greater than the width, wherein the length of the main pattern is oriented substantially parallel to the length of the assist pattern and the width of the assist pattern is between about 60 nanometers and 80 nanometers;

transferring the main pattern to the photoresist layer; and

forming a pattern on the substrate.

26. (New) A method, comprising:

providing a substrate having a photoresist layer formed thereon;

providing a photomask over at least a portion of the photoresist layer, the photomask having a main pattern and an assist pattern, the main pattern having a width and a length that is greater than the width and the assist pattern having a width and a length that is greater than the width, wherein the length of the main pattern is oriented

substantially perpendicular to the length of the assist pattern and the length of the assist feature is greater than one-half the width of the main pattern;

transferring the main pattern to the photoresist layer; and

forming a pattern on the substrate.